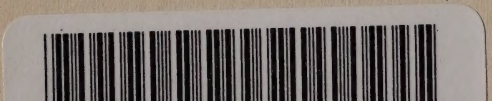
TROPICAL TIPS FOR TROOPS

Lieut-Col. E. T. Burke



TROPICAL TIPS FOR TROOPS

OR

HOW TO KEEP FIT IN THE TROPICS

BY

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with a Foreword by

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To
the Officers, Warrant Officers,
Non-commissioned Officers and
Men of the

SOUTH STAFFORDSHIRE REGIMENT

who are now serving, or will in the future serve
their country in the tropics.

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FOREWORD

By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P.

In the following pages Colonel Burke has succeeded in placing before us in simple straightforward language a vivid impression of the dangers that lurk in tropical lands and how equally simply they may be avoided. To many who have never lived in the torrid zone apprehension of their dangers is usually greater than their realisation. Ordinary laymen, serving officers and men in particular, entertain a natural aversion to tropical diseases, more especially to the scientific jargon which clutters up those medical books devoted to this subject, and to overstatements which find their way into the popular press and novels of the sensational type. It is therefore a great advantage in times like these to have such a complicated subject presented in an attractive manner; and, in doing so, the author has succeeded where others before him have failed. When the cunning methods by which these diseases are conveyed are understood their avoidance becomes a matter of common sense. The author of *Tips for Troops* has this in good measure and his readers cannot

fail to assimilate this virtue from inwardly digesting his advice.

PHILIP MANSON-BAHR.

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CHAPTER I

General Advice with some Hints on Tropical Kit

My main object in writing these notes is to enable you, who are soon to leave the United Kingdom for the Near, Middle or Far East, to maintain your physical health and mental vigour amidst the new and adverse conditions which await you. The soldier must be in good health if he is to carry out his duty with anything approaching efficiency. Sick men are a nuisance to an army, cumbering its mobility and seriously undermining its morale. Most of the sickness in the tropics is preventable; and it is, therefore, up to every soldier—especially if an Officer—to know how to preserve his own health and maintain that of his comrades.

The overwhelming proportion of ill-health which is encountered among Europeans—and also among natives—in the tropics is due to a combination of ignorance and carelessness. For either of these in the European there should be no excuse. I shall therefore set down for you certain facts which will dispel your lack of knowledge; and I shall describe certain procedures, based upon these facts, which modern medical science and experience have shown to be essential. Having

once done that, I can only hope that your own sense of duty and responsibility will constrain you to act upon them, and will prevent you from relapsing into careless conduct.

If you want to keep well, your vigilance must be unremitting. You are the sentry over your own health; and your personal carelessness in that respect may—as in the case of being asleep on your post—be fraught with great danger, even death, to yourself and to your fellows. A man may, by neglect of certain precautions of which he is well aware, become the victim of cholera. So he may be the origin of an epidemic which possibly may not be stamped out until the Force of which he is a member is practically decimated.

The first thing I want you to realize is that your human body, born and brought up in a temperate, not to say chilly, climate, is really a very delicately adjusted piece of mechanism. It has for some twenty or more years become habituated to the meteorological and nutritive conditions obtaining in the United Kingdom. That body has, it is true, a very great power of adapting itself to other conditions; nevertheless, any sudden change from one set of conditions to an entirely different one, throws an immense strain upon the physical and mental mechanism. Some damage is inevitable; and too often that is of such a degree or extent that the end-result is permanent disability or death. Under peace-time conditions when all the amenities of civilization are available—ice, fans,

comfortable beds, good food, pure water and proper sanitation—life in the tropics is not too bad; but when you are in the Field, often for many months literally "pigging it," then the tale is an entirely different one.

Tropical Kit

To a certain extent, at least as far as the bare official essentials are concerned, the type and quantity of your tropical kit will have been decided for you by the Army, especially if you belong to the category of "other ranks." The Officer has, however, a little more latitude, chiefly secured by dipping into his own pocket.

By listening to the glib tongues of some of the high-pressure salesmen in the too-prevalent up-start so-called "tropical outfitters," you are liable to find yourself cluttered-up with a lot of useless, poor quality gadgets. There are, I think, several hints and tips which an old hand like myself may usefully pass on to you.

The regulation tropical helmet is made of cork. It is excellent and affords adequate protection from the sun to the head and neck. Most people, however, find that in the very hot weather, it becomes somewhat heavy and irksome. A much more comfortable type of headgear is the thick *pith* topee. It is much lighter than the regulation helmet, and because of its thickness the protection it affords is greater. It will not stand up to as much

rough usage as the helmet, therefore it is prudent to invest in a couple of them. Pith topees can be bought in London; but they are much less expensive in Mombasa, Suez, Port Said, Bombay or Colombo.

During the hot weather in the Mesopotamian campaign of the last war, with the temperature at least 128° F. in the shade, most people added to the helmet or topee a khaki cloth flap which hung down at the back reaching to the shoulders. This was fixed to the helmet by means of a tape running round the lower edge of the pugaree and tied in front. Such an arrangement certainly gives additional protection to that very vulnerable area—the back of the neck.

Flies and other insects can be extremely irritating on the face and neck especially when you find yourself acting as a scout or observer in some situation where the slightest movement may reveal your position to the enemy. To combat this particular aspect of the fly-nuisance you should, before you leave Great Britain purchase some two yards of mosquito netting and get some obliging girl friend to make it into a bell-shaped structure which can be placed over the top of the helmet so as to hang down all round. When the hem of this garment is tucked into the collar of your shirt or tunic, your face and neck will be immune from insect-attack. This arrangement is, however, very hot to wear.

You must take at least three tropical shirts with

you. Have nothing to do with the extremely thin ones made of tussore silk or some such material. They look very æsthetic, but they give practically no protection against the sun unless worn underneath the drill tunic. Your shirts should be of medium thickness and made of material which will absorb a good deal of sweat. A thin silk shirt, wet with perspiration and sticking to your back and chest, is a very horrid abomination. Each shirt should have shoulder-straps of the same material as the body of the garment to carry your badges of rank. It should be provided with two breast pockets with flaps to button down just as on the tunic. It should fasten with three or four buttons down the front. Avoid zip-fasteners as you would the plague. Each shirt should have a stitched-on collar. It is better to have long sleeves which can be worn turned up above the elbows during the day, and fastened at the wrists after sundown.

You must appreciate that at high altitudes in the tropics, the weather can be very cold at night. You should, therefore, add to your kit a pair of light woollen undervests and a pair of khaki shirts of the same weight as those you wore before you set sail from the United Kingdom.

Your tunic will be of the regulation khaki drill which is washable. The buttons must be detachable. A spare set of bone buttons for your tunic will be found most useful.

In the very hot weather a spine-pad is advisable

if you have to be out during the day. This consists of a fairly thick piece of khaki material which is worn down the middle of the back. The shirt and tunic must be provided with buttons to which it can be attached.

"Shorts" reaching to just above the knee are usually worn during the day. After sundown, however, when the mosquitoes really begin to get busy and make their vicious attacks upon exposed knees and thighs, shorts should be discarded in favour of "slacks". Provide yourself, therefore, with a pair or two of khaki drill slacks from Ordnance *via* your Quartermaster.

Plenty of moderately thick sweat-absorbing socks are necessary. You must also provide yourself with four pairs of knee-length khaki-coloured stockings. These should be made of medium weight pure wool.

Brown leather marching boots and shoes are necessary. These should be of the best quality and well-fitting. It is not good policy to economise in shoe-leather. A pair of rope-soled canvas shoes or sandals will be found useful.

You must have two medium-weight pull-on woollen body belts—sometimes referred to as "cholera belts". Always wear one of these on going to bed at night or on taking a siesta during the day. If by any chance these belts become mislaid, extemporise one by wrapping a puttee round your waist and abdomen. Several pairs of good—but not necessarily expensive—glare-glasses

should form part of your kit. These should be of a cool green tint—blue is harmful—and made of Crookes' glass. Go to a reputable firm for these glasses because those which you can buy in certain stores at sixpence a pair will almost certainly damage your eyes. The reason is that the surfaces of the cheap lenses are not ground perfectly flat and these irregularities cause eye-strain. If, because of some defect of sight you normally require to wear spectacles, you must have these altered to the anti-glare type using Crookes' glass; and *take at least three pairs with you*. If you have only one pair of spectacles for the correction of your visual defect, and these become broken or lost, that will render you practically useless until replacements are obtained—a procedure which may take several weeks or even months.

In many parts of the East very severe sand and dust storms, often lasting for many days, are prevalent. In such a storm, unless your eyes are effectively protected, you will very quickly be out of action, and perhaps for quite a long time, on account of acute inflammation of the eyes. Really efficient dust-goggles are somewhat expensive—from £4 upwards—but they are very well worth the money. They must fit perfectly to the face and the lenses must be of unsplinterable tinted glass.

A good mosquito net is, of course, absolutely essential. This will not only protect you at night against the malaria-carrying insects, but it will enable you during the day when the opportunity

occurs, as it often will during the hot weather—and it should always be immediately seized—to obtain a few hours siesta secure from the plague of flies which you are only too likely to encounter. The handiest type of net is that which is bell- or cone-shaped. It is suspended from one point only—the apex of the cone. To erect the box-shaped type of net, a number of rods—usually twelve—are necessary; and these have an irritating habit of getting lost or broken, and that practically renders the net useless. The cone-shaped type of net, on the other hand, with its single-point suspension can be easily erected by fixing it to a branch of a tree, a wall, a pole leaning against a wall, the perch-pole of a wagon, the tail-board of a vehicle, and host of other things which are usually available where one or two British soldiers are gathered together.

If at all possible you should take with you a light type of camp bed. Sleeping on the ground has many disadvantages, not the least of which is finding a snake, a scorpion or a tarantula among your blankets or in your flea-bag.

Reference has already been made to the fly-nuisance; and that is a thing which has actually got to be experienced before you can have the slightest idea of what it really means. It quickly arouses in even the mildest mannered man a fierce belligerency against insects of every kind. It becomes one of your main objects in life to kill as many flies as you can, and you will invent and

discuss with your brother officers many ingenious ways of doing so.

You will be able to keep flies at a distance by the correct manipulation of a fly-whisk. To kill the brutes, however, you will require a fly-swatter. The fly-whisk consists of a wooden handle, about a foot long, to one end of which is attached an equally long or longer whisk composed of hairs from a horse's tail. The fly-swatter has a handle of a like length; and an egg-shaped disc of fairly stout but flexible leather is attached by its narrow part to one end of the handle. The length of the leather disc should be about eight inches and its breadth about five inches. The fly-swatter is quite easily made by any handyman. You will not have been on tropical service very long before you will find that one or other of these implements is your constant companion. They will take the place of the present useless little swagger-cane which you have been carrying.

Because the tropical nights can be extremely cold, especially in mountainous regions such as Abyssinia, it is important that you should possess warm woollen pyjamas. Wear these at night upon the first indication of any marked fall in the atmospheric temperature.

I do not think that there is any need for you to purchase any medical or surgical equipment—first-aid materials. If on isolated outpost duty, you will be provided with all you are likely to need, or are capable of using properly, by your

Regimental Medical Officer or by the nearest Field Ambulance. There is, however, something which, to a certain extent comes into the category of "medical stores" and which I regard as most important. I strongly recommend you to pack in your kit one or two large bottles of an effervescent saline such as Eno's Fruit Salt.

I have found on many occasions when matches were not available or when they had become damp and would not light, that a small pocket magnifying glass—such as one used to be able to buy at Woolworth's for sixpence—was most valuable. You should also take with you a tinder lighter.

It is an excellent idea when packing your kit to place among your clothes and blankets a few moth balls to keep insects away.

CHAPTER II

The Sun

The glorious summer sunshine in which you have so often revelled in such places as Brighton, Torquay and Penzance, is a very different thing indeed from the fiery disc that hurls its rays at you in Somaliland or the Persian Gulf. The British sun is a kindly, placid Old Sol—health-giving and benign. But in the tropics he is a savage, relentless, death-dealing, treacherous monster. He is a dangerous foe, one to fear and respect. Neglect him or defy him and he will strike you down.

The sun is Public Enemy No. 1. Fortunately a very great deal can be done to limit his power to cause you harm. Indeed, provided you pay unremitting care and carry out certain precautions, he will not cause you much bother—only some discomfort. Never forget, however, that he is always lying in wait for you to make one false move.

Apart from the actual *heat* produced by the sun —temperatures of 128° to 130° F. or more in the shade—the *light* rays can exercise a most rapid, severe and disabling effect upon the human body. This they do by their action upon the skin.

Most people are accustomed to think of the skin

as being merely a handy sort of covering for their "innards", a structure which requires to be washed, which sometimes itches, and which gives a sensation of pain when injured. The skin is however, much more than that. It is one of the most important organs of the body. To a great extent it regulates the bodily temperature. Thus, after strenuous exercise you feel hot; the skin begins to perspire; the sweat evaporates; and this has the effect of cooling the surface of the body.

The skin is continually perspiring—though not necessarily visibly—and in this way the body gets rid of a large quantity of poisonous waste-material. This is called the "eliminatory function of the skin". If it is interfered with, these waste-products are retained in the body and illness results—really a form of poisoning.

Superficial burning of the skin has the effect of putting out of action, in the burned area, this eliminatory function. If two-thirds of the surface area of the body is so burned—quite superficially—so great a retention of poisonous material occurs that it is long odds that the result will be a fatal one. The superficial burning of a smaller area will cause the person to be quite seriously ill.

Now the sun, even in the British climate at times, is capable of producing such superficial burning of the skin; and in the tropics, it is obvious that that effect is much more quickly brought about. Sunburning and blistering, so severe as to cause grave illness or even death, are by

no means uncommon. Hence, it is of the very first importance that before entering the tropics everything possible should be done to render the skin able to withstand the fierce solar attack which will be made upon it.

How does the skin naturally protect itself against the sun? It does so by taking on a deeper degree of pigmentation. This is, of course, a matter of common knowledge. Everyone knows that the exposed parts of the body are of a darker tint than the covered parts. Under the stimulus of light the skin becomes tanned; and there is thus interposed between the sun's rays and the deeper layers of the skin a kind of protective barrage of pigment which is derived from the blood. If you expose your hand to the sun it becomes reddened and very warm. This is due to an added supply of blood being attracted to the area. Some of the blood-pigment escapes from the small blood vessels into the superficial tissues. It is this reddish-brown pigment which gives the skin its tanned appearance. The oftener the exposure to the sun's rays and the more intense the light, the darker becomes the tanning. This reaches its highest degree in those races such as negroes which, since man first appeared, have lived in tropical climates. So deeply are such races pigmented, and so accustomed have they become through countless generations to a sun-drenched environment, that they are practically immune to any solar attack.

But even the natives of the tropics seek the

shade. Even they, hardened as they are, do not take liberties with the sun. That being so, it is clearly very necessary for the white-skinned European to undergo a careful scientific preparation before he encounters the tropical sun.

Tanning of the skin is the first line of defence against the solar assault. A very great deal of tanning can be acquired before you embark, no matter how dull and dismal and foggy the weather may be. It is to be obtained by taking a course of ultra-violet light baths. You can even do this in your own bathroom provided you possess the necessary "sunray" lamp. These baths are, however, better to be taken under the supervision of an expert operator. Explain to him the purpose you have in view, and he will then be able to regulate the number of sessions and their duration—in other words, the dosage of ultra-violet light—so that by the time you are due to sail, you will be beautifully bronzed all over.

So powerful is the protection conferred by this procedure; and so rapidly, easily and cheaply is it carried out, that it is strongly to be advocated as a routine for all troops prior to their departure for the tropics. It is a thoroughly modern, scientific and efficacious method, well-known to medical science and proved in every respect. Yet, so far as my information goes, it has never been applied for the purpose about which I am now writing. The Army Medical Service is, of course, well aware of its value; and it is deeply to be regretted that

somewhere between that knowledge and its practical general application, there exists some element of inertia which has prevented its adoption.

The high health value of sunlight in respect of its ultra-violet component is now a matter of common knowledge. The effect of these rays, apart from tanning, is to bring about certain chemical changes which result in Vitamin D appearing in the skin, in the blood becoming richer in calcium and phosphorus, and so more capable of destroying disease-producing germs.

For many years before the present war, ultra-violet light bathing was adopted for the employees of certain industrial concerns on the Continent, chiefly in relation to subterranean labour such as coal mining. When the miner going on duty arrived at the pit head, he went first to a building where he completely stripped, stored his clothes in his locker and donned special garments for working underground. After his work was finished he ascended to the surface and entered a part of the same building which consisted of a large and well-equipped sun-ray department. On entering this department he divested himself of his working clothes, and these were handed in to be cleaned and returned to his locker ready for the time when he next came on duty. He then entered another room where he took a hot bath followed by a cold or tepid shower and a brisk rub down. When dry, he entered

another room flooded with ultra-violet light. He there remained for from ten to fifteen minutes. At the end of that time, he was released to get his outdoor clothes and proceed home. Wherever this procedure was adopted it was found that the physique of the men improved markedly, that the sickness-rate decreased in a most striking manner, and that the industrial output was so greatly increased that the time involved in carrying out the washing, changing and light-bathing could—and with something still in hand—be reckoned as part of the normal working day. It was proved to be a pay-proposition for both employer and employee. If a large industrial concern has found this procedure to be a sound business proposition, surely the Services would find it yielded similar results to *them*.

So convinced am I of the value of ultra-violet light bathing, not merely with respect to preparing troops for tropical service but for improving the health of those who may never be called upon to serve abroad, that I most strongly advocate its use as a routine measure. It would be an excellent thing if applied to the general civil population particularly to those city workers who, during these times, spend a considerable part of their lives in sunless underground A.R.P. shelters. All the necessary apparatus and experienced operators are available in adequate numbers. For the Army, all that is required is a business-like working arrangement between the War Office and

the special departments of the Hospitals. A sun-ray station should be installed wherever there is a concentration of troops in the United Kingdom; and ultra-violet light bathings should be a compulsory parade at least twice a week.

Whether or not you are able to obtain the light baths to which I have referred, you must, before leaving Great Britain, obtain a supply of a good protective "sun-tan" oil. This is for use on board ship. On the voyage every opportunity should be taken of indulging in sun-bathing *parades*. I emphasize the word "parades" because it is essential that sun-bathing should be properly supervised. Commanding Officers will be well-advised to take an intense personal and practical interest in this matter, and by their own example create enthusiasm among their subordinates. All these parades should, of course, be combined with some form of purely military instruction such as tactical lectures, map-reading, sand-table exercises machine-gun instruction, etc. From the health point of view the whole object of such parades is to secure an adequate but *gradual* tanning of the whole body.

To attempt to hurry the business is simply asking for trouble; and as a rule you will not have to wait long before it arrives. The necessity for acquiring the tanning gradually and without burning or blistering cannot be stressed too strongly. Any man parading sick on account of burning by the sun should be punished. All ranks

should be made aware of the fact that the soldier in the tropics who develops "cold feet" before an action can easily render himself unfit for duty by unduly exposing his body to the sun. He need only lie face downwards in the sun exposing the backs of his knees and in a very short time these areas will be so burned and blistered that he will be quite unfit to march or fight. If troops know this, and know that their Officers and N.C.O.s are likewise aware of it, it is very unlikely that this form of malingering will be attempted since it will involve severe punishment.

On the voyage, the tanning must be carried out on the "instalment system", or bit by bit. For the first day or two there should be worn: a cap, shirt open at the neck with sleeves rolled up above the elbows, shorts and shoes. Before exposing these areas to the sun they must be well anointed with the protective oil. This should be applied as often as may be necessary. The duration of each sun-bathing session will, naturally, depend upon the sun's intensity, and it will be well to take the advice of the Medical Officer upon this point. It may be advisable to divide the parade into two sections, fair and dark, the latter being able to sustain longer exposures than the former without burning.

When the face, neck, arms and legs have been tanned, carry out the next stage clad in shorts only, so exposing the chest and back. These areas must also be well oiled in order to prevent

blistering. Three days should see these parts thoroughly well "cooked". After that, wearing a helmet only, the whole of the body should be exposed to the sun. It is best to go completely nudist. If you or your men are too modest for that—a thing you will soon get over—then wear only whatever is the modern equivalent for a fig leaf.

With anything like favourable weather every man of your unit should arrive at the disembarkation port thoroughly bronzed and in the pink of physical fitness. When this final stage has been reached all further sunbathing should be forbidden unless just before sunset, at which time men may be permitted to walk about clad in shorts only. Once you are actually living and working in the tropics you will find that your skin will retain its tan in spite of the fact that you wear a shirt and perhaps also a tunic.

You will not be long on active service in the tropics before you will observe quite a large number of men who can only be regarded as solar lunatics. As a rule you will find these to be men of excellent physique who are extraordinarily proud of their muscular bodies. They delight in showing off their beautiful torsos. They do so by performing their jobs, even during the full heat of the day, wearing only topee, shorts and shoes. The motif underlying the whole thing is simply overweening vanity. Such men desire to render their bodies so tanned that they will resemble bronze

statues. They defy the sun and they are immensely gratified to hear anyone who sees them remark: "By Jove! What a fine physique that fellow has." The really correct observation to make is: "My God, what a bloody fool that man is!"

Madmen such as these hope to return home at the end of the war and proudly show off their bronzed bodies to their admiring friends in the local swimming baths. Most of them, however, do not return home. The sun eventually gets them; and after a period of high temperature with delirium they not infrequently storm their way into the quietude of death. Unless things have vastly changed you will see many of these simple souls serving their guns or doing some other job of work during the blazing sunshine stripped to the skin and looking remarkably fit and cheery. But you will not see them after the sun has really smitten them, for they will be lying in a darkened tent being fanned and rubbed with ice or douched with as much cold water as can be procured night and day by relays of overworked R.A.M.C. orderlies. Don't, then, ever be tempted to indulge in that particular form of insanity. Such conduct should be very severely punished for it is equivalent to the crime of a self inflicted wound.

You must never on any account, even for a few seconds, dash from one tent or building to another in the sun without wearing your topee. Such an action may mean sunstroke.

Whenever you are in the sun, or are looking

out into the sunshine from a tent or building, always wear your glare-glasses.

During the daytime learn to fear the sun. Don't go out in it if you can avoid doing so; and if you *have* to go out, walk slowly, breathe slowly and talk slowly. Seek to imitate the leisurely and dignified deportment of the Arab.

When you awake in the morning drink a tumblerful of cold water in which you have stirred a teaspoonful of effervescent saline. Follow this up by a hot cup of tea. Constipation must be avoided; and what I have just described is one of the best and least irksome ways of doing so. Having drunk your tea, get out of bed and indulge in from ten to fifteen minutes of "physical jerks" such as Muller's Exercises. A tepid bath or sponge-down should follow. The *cold* bath is not to be recommended—nor any other extreme measure.

Don't devour the typical heavy British breakfast; rather try to adopt the Continental one. All meals up till sundown should be as light as you can make them. After sundown is the time for the main, heavy, meal of the day.

When the evening arrives, take another tepid or warm bath. If you have left your canvas camp-bath filled with water in the sun all day, it will be quite warm when you require it at night. Having had your bath, get into a completely fresh set of clothes consisting of a shirt, collar and tie, tunic, slacks and boots or shoes.

And here let me digress somewhat and give you some very sound advice. There is a tendency—natural enough perhaps—which is especially well-marked on active service in the tropics, to become lax with regard to what may be described as "some of the decencies of civilized life". Such laxness becomes progressive and can result in degeneracy. Good manners are apt to be allowed to slide. Commanding Officers should make it perfectly clear to their juniors that Mess Dinner is still written with capital letters and is still to be regarded as a parade involving punctuality and correct dress. I have on more than one occasion seen a unit go completely to pieces simply because Officers neglected to shave, attended mess in pyjamas generally unpunctually and, in short, allowed their manners to deteriorate. Such an example is an extremely bad one to show to the men who quickly notice anything of the kind. Once a "rot" of that kind begins at the top, it quickly spreads the whole way through, wrecking discipline and ruining morale. Even when an Officer is alone, in charge of an isolated detachment or outpost, no matter how tired and "fed up" he may be, he should rigorously carry out the evening ceremonial of bathing, changing his clothes and otherwise performing the observances of civilized life. I cannot over-emphasize the great importance of this.

When bathed and dressed, before dinner is the time for the first whisky and soda of the day. That

may well be combined with the swallowing of a 10 grain tablet of quinine—or a small dose of plasmoquine—to ward off malaria. During dinner, if light beer is available, drink that; if not, the next best thing is very weak whisky and soda or whisky and water. Heavy wines such as port and sherry should be avoided. I am one of those who firmly believe that a little alcohol in the evening is valuable in maintaining health in the tropics.

Train your batman to prepare your bed and adjust your mosquito net well before the mosquitoes begin to put in their appearance. Unless this is done sufficiently early, some of these insects may get inside your net and then you will get no sleep and will be well-bitten by morning.

If you feel thirsty during the day, drink very sparingly. When on the march, rinse the mouth out with water but do not swallow any of it—or only a very little. Alcohol is best avoided during the day. The only permissible long alcoholic drink—and only one—consists of the following: into a pint tumbler place a small measure of gin, a fair dash of bitters, a good ration of lime juice, some pieces of ice and then fill up the glass with soda water or plain water.

Whenever you possibly can you should take a siesta during the hottest part of the day under your mosquito net. At all times when you lie down take great care to avoid getting your abdomen chilled as that is very often followed by severe and disabling diarrhœa and vomiting.

This is often referred to as "Gippy (or Egyptian) tummy". The greater part of health troubles in the tropics is concerned with some upset of the bowels and stomach, and any chilling of the abdomen is very liable to start the symptoms just referred to.

This is largely due to the fact that you cannot live in the tropics for long before you become what is known as a "carrier" of various disease-producing germs in your digestive tract. As long as you commit no indiscretion, these germs may lie latent and do no active harm; but if, for example, your abdomen becomes chilled, a point of lowered resistance is created in the bowels, the germs become active, and severe illness, usually in the form of diarrhœa, is the result. If, therefore, you feel so hot as to be tempted to take your siesta naked, don't do so. Always wear a body belt, a towel or a puttee round your waist. If a fan is in the room, allow the current of air to play upon your head only but not upon your body.

Don't forget that you may succumb to heat-stroke at night. When engaged in physical exertion between sunset and sunrise, it is prudent to drink fairly large quantities of water.

All clothing worn in the tropics should fit loosely. Equipment should be of webbing, the waistbelt being worn quite slack. No straps, etc. should cross the chest.

When not being carried in a case, the eyepieces of binoculars should be protected by a leather

shield arranged to run on the sling supporting the glasses round the neck. Unless this is done the rims of the eye-pieces may become so hot in the sun as to cause severe burning when applied to the eyes.

Sunstroke and heatstroke are different names for the same thing. It may occur in daytime or at night. The affected person becomes feeble, giddy, staggers, sways about and falls to the ground. He complains of great thirst. His skin is pale, cold and clammy. His pulse is rapid and very weak. His temperature soon rises to a great height, 106° or even 110° F.—the normal is 98.4°. The patient is flushed and becomes sick and vomits. He develops delirium and convulsions. Death may occur very rapidly. The chief predisposing causes are alcoholism and fatigue.

The patient must be taken into the shade, if possible into some place where there is a current of air circulating. He is stripped to the waist and, if he is conscious, is placed in the sitting position on the ground. Cold water in the form of a spray is showered over his head and down his back, and this procedure is continued till his temperature falls. If ice is available and he is conscious, he is given small pieces to suck. Failing ice, small sips of cold water are given. When the temperature falls he is wrapped in a dry blanket and is made to lie down in a cool place. An attendant must remain with him fanning his head. On no account must any alcoholic stimulant be given.

CHAPTER III

Tropical Diseases

Most of the diseases which you are likely to encounter in the tropics are spread by insects—flies, mosquitoes, lice and fleas. The situation with respect to flies is very adequately expressed in a letter published in the *British Medical Journal* for 22nd February, 1941, by Dr. David Thomson. He writes:

> "The inhabitants of Egypt [and this applies to other Eastern countries] literally live among their own excreta, otherwise it would be an extremely healthy country. Even in a well-ordered town like Alexandria the natives deposit stools by the hundred every night and even by day along the sands of the foreshore, as well as on the dry sandy stretches which run between the sea-front promenade and the town. These fæcal deposits were literally swallowed up by flies and regurgitated by them on the food everywhere. The Army mess-rooms at that time were not fly-proofed. . . . I examined many samples of the fæcal deposits made on these sands by the natives. It was found that a high

percentage contained bacteria of the typhoid-dysentery group. Through the agency of the swarms of flies these organisms kept circulating through the natives and through any newcomers. The only difference is that the natives have become immune since infancy, whereas the rest of us who had come from a well-sanitated country got attack after attack and even became carriers ourselves."

However perfect may be the sanitary arrangements in your own camp, they are completely neutralised and rendered futile if that camp is situated near native dwellings. Get as far away as you can from the local inhabitants. Military considerations—and these are of paramount importance—may render such isolation impossible, and under these conditions you must take every means to combat the fly-plague by protecting food from these pests. The only way to do so is by the adequate screening of eatables and drinkables, stores and mess-rooms. It is obvious that on active service when on the move, this will be impossible; but some approach to it can be made by covering over all receptacles containing food or drink with small squares of mosquito netting.

In the native market-places food, fruit and vegetables are usually exposed for sale. These things, unless properly dealt with, are a grave menace to health. Flies alight on the exposed food, dates, figs, etc., and if these are eaten

without being specially treated, disaster is almost sure to follow. All fruit which is to be eaten raw must be washed and then allowed to soak for some time in an antiseptic solution such as one of permanganate of potassium. The maximum of safety is, however, only obtained by cooking.

Uncooked salads in the tropics are extremely dangerous no matter how appetising they look. The fields in which the vegetables are grown are fertilized by the night-soil or excreta from the native houses, and that is, as has already been pointed out, heavily infected.

The chief dangerous diseases likely to be encountered in the tropics are: smallpox, enteric or typhoid fever, cholera, malaria, dysentery, plague, typhus fever and hydrophobia. Fortunately, certain protective measures against some of these can, and ought to be, taken before you leave the United Kingdom.

Smallpox

This is a disease which is very prevalent in the East. It is highly contagious, and when it attacks unprotected persons, it has a very high death-rate. You must, therefore, see to it, before you embark, that you are effectively protected against smallpox. There is only one method, and that is by vaccination. Fortunately, most people in Great Britain—unless they have been so unfortunate as to have chosen anti-vaccinationists for parents—

have been vaccinated in early infancy. Such early vaccination is capable of conferring protection for at least from seven to ten years. A great proportion of present-day adults have, however, never been re-vaccinated, and in consequence their protection has worn off and they are thus extremely likely to acquire the disease when brought into contact with it.

If ten or more years have elapsed since you were last vaccinated, you certainly must have it repeated. If this re-vaccination does not "take", it shows that you are still protected and are safe. If, on the other hand, it does "take" and you get a painful and swollen arm, then you should rejoice and be exceeding glad for it shows that you were highly susceptible to smallpox in a severe form and that you were badly in need of the protection which the painful arm proves you have now received.

You must realize, of course, that no vaccination or inoculation will give complete protection or immunity in 100 per cent of cases, though it will in 99 per cent. In the remaining 1 per cent of vaccinated or inoculated persons who may actually acquire the disease against which they have been vaccinated or inoculated, the attack will be of a very trivial and certainly non-fatal character. Indeed it may be so slight as to escape diagnosis.

Enteric Fever

Another name for this is "Typhoid Fever". This disease was at one time very common among troops on active service. It was the bugbear of every campaign and, as in the South African War for example, it caused considerably more casualties than enemy action or other diseases. Since the introduction of anti-typhoid inoculation the position has entirely changed. Enteric fever is now a comparative rarity; and when it does occur it is mild in type and the rate of mortality is low.

Enteric fever is a disease characterised by an acute inflammation and ulceration of the inner wall of the small intestine. At first the patient complains of rather vague and indefinite symptoms—headache, pains in the back, abdominal discomfort and tenderness, and a slight rise of temperature. He feels rather "seedy" but is not acutely ill. The temperature rises gradually in a peculiar "staircase" fashion; that is, it rises, then falls slightly, rises again, then falls a little, and so on. But each succeeding rise is higher than the previous one, so that the general tendency, in spite of the falls between each rise, is upwards. In about seven days the temperature reaches its maximum; and at about the same time a rose-coloured rash shows itself on the chest and abdomen. The patient begins to suffer from severe diarrhœa, the motions resembling pea-soup. The condition now remains unchanged for

about a week. The disease may then take a favourable course, the fever and diarrhœa decreasing and the patient becoming convalescent. Recovery is a long drawn-out business and relapses are very common.

On the other hand, instead of improving, the disease may rapidly become more severe. The patient becomes delirious. This is succeeded by drowsiness which eventually deepens into complete unconsciousness (coma) with extreme weakness and exhaustion. A most serious complication is that the intestinal ulcers may perforate the wall of the gut and so cause peritonitis and death. Other death-dealing complications are: pleurisy, pneumonia, inflammation of the kidneys, and the formation of clots inside the blood-vessels.

The disease is spread in various ways but chiefly by the contamination of food and drink from infected excreta—stools and urine—from persons suffering from enteric fever or who have recovered from it and are apparently healthy but who are still "carrying" the enteric germs in their intestines or kidneys. Flies feeding on such infective material derived from the natives, alight upon exposed food and deposit thereon the germs of the disease. Such food and drink, unless it has been sterilized by cooking or some chemical means, will, if taken into the digestive tract of a healthy person, give rise to enteric fever. This will be particularly severe if no prior protective inoculation has been carried out.

There are two other fevers which closely resemble typhoid, and these are known as Paratyphoid A and Paratyphoid B. The protective inoculation you receive for these three fevers is known as "T.A.B."—*i.e.* it is a vaccine made from the germs of typhoid, paratyphoid A and paratyphoid B. This inoculation should be done before leaving Great Britain.

Sometimes anticholera vaccine is added to the T.A.B. especially when troops are going to India.

Apart from inoculation, prevention consists in protecting all food and drink from flies and other means of contamination. Even in Great Britain serious epidemics of typhoid have been traced to a single "carrier"—for example an employee on a farm supplying milk to dairies. The lesson to be learned from this is that in the East all milk prior to use must be boiled. This effectually destroys all disease-producing germs.

Considering the high proportion of natives who are carriers, and having regard to their insanitary habits, it is evident that every water-supply must be regarded as suspect. Both running streams and wells are likely to be contaminated with the germs of enteric fever—or cholera or dysentery—and it is, therefore, absolutely vital that no water should be used for drinking or mouth-washing unless it has been sterilized either by boiling or by chemical means such as chlorination.

Cholera

This disease also attacks the intestinal tract. Its chief symptoms are: very profuse watery motions which occur in rapid succession, vomiting, severe cramps in the muscles especially of the thighs and calves, inability to pass urine and extreme weakness. Cholera strikes its victim suddenly and, in the unprotected person, is very rapidly fatal—often within an hour or two. Like enteric fever, the germs of this disease gain entry to the body through contaminated food and drink. These germs are derived from the excreta of persons suffering from the disease or from carriers.

The same measures as have been outlined for enteric fever in respect of the protection of eatables and drinkables and their sterilization, apply with regard to cholera. Protective inoculation for this disease should be carried out during the voyage and it should be repeated every six months.

Dysentery

There are two types of this disease—amœbic dysentery and bacillary dysentery—due to two different micro-organisms. In both cases there is severe inflammation of the bowels which shows itself by abdominal pain and the passing of

copious liquid motions containing blood and slime. The germs causing both types of dysentery are derived from the motions of dysenteric patients, and are distributed chiefly through the agency of flies and water. It is, therefore, most important that the stools of patients suffering from dysentery—as well as those suffering from enteric or cholera—should be disposed of either by burial or incineration so that they are not accessible to flies.

Protective inoculation is not available for dysentery, so dependance must be placed upon such preventive measures as destroying the breeding places of flies and the protection of food and drink from these insects. All water-supplies must be carefully controlled and sterilization effected by boiling or chlorination. To avoid dysentery you must rely upon your own personal unremitting vigilance over what you eat and drink. Unfortunately, in spite of all you can do, the chances are that you will not escape entirely scatheless. If at any time you develop frequent diarrhœa accompanied by pain and the appearance of blood and slime in the motions, you must immediately report to your Medical Officer. If you are in some isolated spot and cannot do so, you must just "doctor" yourself as best you can with the drugs your M.O. gave you before you left your unit. Most likely, however, you will have with you an N.C.O. or orderly of the R.A.M.C. who will be quite competent to give you all the

treatment necessary until a Medical Officer appears on the scene.

In reading the foregoing pages you will, no doubt have noted that these diseases—enteric, cholera and dysentery—all possess the chief symptom of diarrhœa. As that is an indication of inflammation of the bowels, it is obvious that in dealing with such diseases special feeding is required. The affected person must be put on a purely soft milk diet—the only solids allowed being arrowroot, very well-boiled rice or bread in boiled milk. One mouthful of bacon or of bully beef may be fatal by causing perforation of the bowel. Large quantities of liquids must be taken in order to make-up for the loss of body-fluids consequent upon the diarrhœa.

Malaria

Malaria is extremely prevalent all over the East—even in the Balkans, especially near Salonika in the Vardar and Struma valleys. It is caused by a parasite carried by a certain species of mosquito. These mosquitos breed rapidly in stagnant water, which is a favourite haunt of theirs. When an infected mosquito bites a human being, some of the malaria parasites are injected into that person's blood. After a time, when they have multiplied in sufficient numbers, they give rise to that particular type of fever known as "Malaria".

There are several types of malaria. These are

classified according as to whether the bouts of fever occur every day, every second or every third day. In medical parlance these are known respectively as "quotidian", "tertian" and "quartan" malaria. The bouts or paroxysms of fever occur at perfectly regular intervals so that you can tell to within a few minutes when the next attack will take place.

The attack begins by the patient feeling chilly. This increases until soon his teeth are chattering and he is shivering with cold. Soon this is succeeded by what is known as the "hot stage", the temperature reaching 105° F. or even higher. The patient feels very ill and suffers much discomfort and distress. After a variable period his body breaks out into a drenching sweat. He now experiences great relief and the temperature falls to normal. He feels very weak but remains without fever until the time for the next attack arrives.

There is no preventive inoculation against malaria. The only sure way to avoid getting it is to avoid being bitten by a malaria-carrying mosquito—and that is practically impossible. You can—and must—however, take certain precautions. These mosquitoes operate chiefly at night and hence it is important that you should always sleep under an intact mosquito net. A fair degree of protection is obtained by taking 10 grains of quinine daily or a small dose of plasmoquine.

Where the military situation permits, avoid

pitching camp near stagnant water. If there are such patches of water in your area—even only small puddles—drain them or float a layer of oil upon the surface.

By properly controlled measures, malaria can be completely stamped out from any area. The first project of building the Panama Canal by Vicomte Ferdinand de Lesseps, who completed the Suez Canal in 1869, had to be abandoned on account of the high sickness-rate from malaria and yellow fever (another mosquito produced disease) amongst the workers causing an enormous number of deaths. When eventually the enterprise was taken over by the Government of the United States, scientific anti-mosquito measures were adopted by the Medical Service with the result that malaria and yellow fever completely disappeared from the Canal Zone and the undertaking was successfully completed. This former death-trap is now one of the healthiest places in the world.

Plague

This is a most serious disease with an extremely high death-rate. Very few persons indeed survive an attack. It is spread by the bites of fleas which have received the germs during their residence upon the bodies of rats suffering from the disease. Hints upon mitigating the flea-menace will be given in a subsequent chapter; but with regard to

rats, the general principle to be adopted is that whenever you see a rat, kill it.

The general constitutional symptoms of plague are: severe headache, high fever and great weakness. The great distinguishing (diagnostic) sign is the occurrence of swelling of the glands in such situations as the groins and arm-pits. These glandular swellings are known as "buboes", and because of this the disease is usually referred to as "bubonic plague".

A special protective vaccine is available, and this should be injected into all troops before entry into any area in which plague is known to exist.

Hydrophobia

Hydrophobia or rabies is by no means uncommon among native races in the tropics. This is an infectious disease which is acquired from the bite of an animal suffering from rabies. Not only dogs become rabid and capable of causing this most dread malady, but also cats, rats, cows, camels, horses and jackals. The virus causing the disease is present in the saliva of the rabid animal.

When such an animal bites a person, a long time —even up to six months—may elapse before any symptoms of hydrophobia appear. The first signs are that the patient feels ill and becomes very restless; there is some fever; and the glands in the vicinity of the bitten area begin to swell. Very soon the sufferer experiences a choking sensation; and the muscles of the mouth and throat go into

spasmodic contraction especially when swallowing is attempted. The fever increases, delirium supervenes, and the patient throws himself about violently and behaves like a raving madman.

Unless the patient receives treatment by means of Pasteur's anti-rabies vaccine injections he dies within seven days of the appearance of the first symptoms. Among inoculated persons, however, the death-rate is only one in two hundred.

The British soldier on active service is an inveterate pet-collector; and usually the pet takes the form of some kind of a dog—usually a pariah or some extraordinary mongrel. Most of us are dog-lovers; but there is no getting away from the fact that the camp dog in the East is a terrible menace. A vast deal of grave trouble would be avoided if it were forbidden to keep a dog in camp or elsewhere while on active service in the tropics. There is a high incidence of rabies among the dogs belonging to natives. If a camp dog comes into contact with such an animal, as is almost inevitable, it is very likely to acquire the disease. If the camp dog does become rabid, it may bite a man before the fact that it is rabid is discovered; and indeed, the first notification of the fact may be the development of hydrophobia in the bitten person.

Jackals entering a camp at night may convey infection to the camp dogs or to a man by biting him. The only safe procedure is to ban dogs and shoot all jackals.

If a man is bitten by a dog, the animal should not be destroyed but kept tied up and under observation. If the bite is on a finger, tie a tight bandage or string round the digit between the bite and the heart so as to stop the poison circulating throughout the body. The hand should be allowed to hang downwards and bleeding is encouraged by squeezing the tissues. Suck the wound vigorously and spit out the blood. Bathe the wound with hot water as this helps bleeding and has at the same time a cleansing effect. The wound must be cauterised thoroughly without delay. This is done by dipping a match-stick or a sharpened piece of wood into some fluid caustic such as pure carbolic, nitric or any other strong acid and vigorously working the stick into every part of the wound. A piece of wire heated to a dull-red heat may also be used. When cauterization is done, the constricting bandage is removed and the wound is dressed in the ordinary way.

If the bite is on the arm or leg, the constricting bandage is placed round the limb between the wound and the heart and this is tightened by placing a stick between the two halves of the knot and twisting it round after the fashion of a first-aid tourniquet. The rest of the treatment is as described for the finger.

When the face or the trunk have been bitten, the application of constriction is impossible; and in consequence these bits are the most dangerous. All that can be done is the encouragement of

bleeding, cleansing by hot water, and cauterization.

Whenever a person is bitten by any animal, rabies must be taken as a distinct probability and the above measures must be carried out promptly.

The patient should be evacuated to hospital and the animal responsible for the bite should be investigated at the Laboratory for the presence of rabies.

With regard to animal bites, a good deal of fairly successful malingering can be carried out unless great care is taken. I have known of men biting themselves and alleging that it had been done by a dog. I have seen so-called dog bites which have been self-inflicted with the teeth of a steel comb. Such attempts will, of course, fail to deceive an alert Medical Officer. Whenever an epidemic of dog or jackal bites arises, strongly suspect malingering. The thing is apt to spread like wildfire especially during the hot weather.

Snakebite

This is always present as a possibility in the tropics. If the snake is a truly venomous one, a fatal result may be almost immediate. Correct treatment must be carried out without the slightest delay. Constrict the bitten finger very tightly with the finger and thumb of the other hand and *shout for help*. Suck the wound and cleanse it thoroughly—if necessary, enlarging it

with a knife—and tie a tape or a bootlace or something of the kind, between the wound and the heart. If permanganate of potash in crystals or powder is available, this should be well rubbed into every part of the wound. A strong solution of the permanganate is also valuable. If permanganate is not to be had, then cauterize as for a dog bite. When the bite is on the hand, foot, forearm or leg, fix a tourniquet round the upper part of the thigh or upper arm and twist it very tight. Then proceed with treatment as outlined above.

There has already been mentioned the possibility of a scorpion or tarantula or other venomous insect getting into your bed. Bites from these can be very serious, even fatal. Treatment consists in the application of a tourniquet if the bite is in an area where that is possible, in squeezing plenty of neat whisky or brandy into the wound and then rubbing into it powdered permanganate of potash or a very strong solution of ammonia. Ammonia is particularly useful in scorpion bite.

Typhus Fever

This disease—the old "jail fever" of the British prisons—occurs in frequent epidemics in the Near East and in the tropics as a whole. It is spread from a typhus patient to a healthy person by the bites of body-lice.

The sufferer at first feels very "seedy", has a

most excruciating headache, generalized aching all over the body, shivering, profound weakness and fever. The face becomes of a dusky tint. The tongue and lips present a foul appearance being covered with a dark brown "fur". On the fifth day of the disease, the skin takes on a mottled appearance and there is present a plentiful crop of bright pink spots. The weakness increases, delirium occurs and this is followed by coma. At about the end of two weeks in favourable cases, the temperature rapidly falls to normal and the patient enters on his convalescence. Complete recovery, however, takes a long time—often three or more months. The death-rate from typhus is about 40 per cent. There is no protective inoculation for this disease. Prevention consists in the destruction of body-lice—a subject which is dealt with in the next chapter.

Venereal Disease

A tremendous loss of man-power occurred during the 1914-1918 war on account of venereal diseases—syphilis, gonorrhœa and soft chancre. It is, therefore, the duty of Officers to talk to their men very seriously upon this subject. Don't preach to the men; just give them a plain statement of the facts. The Regimental Medical Officer is, of course, the best person to undertake these talks.

Some 90 per cent of native women suffer from

venereal disease; and sexual intercourse with one of these will almost inevitably result in the man concerned becoming infected. In many of the countries in the Near East and in the tropics there are licensed brothels, the inmates of which are under a so-called state supervision. Such supervision has been abundantly proved to be totally ineffective. The fact that a brothel is licensed does not in any way imply that the women attached to it are free from infection. The man who imagines that he may safely indulge in sexual intercourse in such an establishment will very quickly discover his mistake.

The only sure way of avoiding venereal disease is to abstain from illicit sexual connection—even with European women—and this is by no means an unattainable ideal. If any man does expose himself to the risk of infection, he should as soon as possible—certainly within 12 hours—report the fact to a Medical Officer who will treat the matter in strict confidence and will take measures which have an excellent chance of preventing any disease resulting. It should be impressed most strongly upon all ranks that they must report sick at once upon the appearance of any sore on the genital organs, any discharge from the urinary passage, any swelling in the glands in the groins or any rash appearing on the body or forearms or forehead.

When these venereal diseases are discovered early, they are easily treated and rapidly cured.

When not discovered till late, cure may be impossible or take a very long time and the patient will be left with a permanently and severely damaged heart and nervous system which will cut short his span of life.

CHAPTER IV

Vermin

With regard to body-vermin, I can speak from painful but nevertheless interesting personal experience. During the Gallipoli campaign of 1915-1916, I spent many months on the Peninsula living in a hole in the ground, tormented by myriads of flies, unable to get a bath, the victim of dysentery and bearing upon my body a large and extremely industrious population of lice. There may have been other men as verminous as I: there was certainly none more so.

I kept my hair and beard as close-cropped as possible by the frequent use of a pair of horse-clippers; but in spite of that, these areas continued to be well-inhabited. What struck me then—and it has never since ceased to amaze me—was the extraordinarily philosophical way in which one came to accept, and even to neglect, the attentions of these uninvited guests. One very soon adapted oneself to being in a verminous condition and so came to live with these parasites in a state of symbiotic amity. In the very early stages one certainly tried remedial measures, but when these proved unavailing, chiefly from the lack of the necessary materials, there seemed nothing for it

but to accept the inevitable and regard the whole business as being part of one's now normal life.

When eventually I reached the hospital ship *Gloucester Castle* as the occupant of a stretcher, the first bath to which I was subjected was one of turpentine or of paraffin—I forget which. Soap and hot water would obviously have been utterly wasted upon my foul and lousy carcase. The initial assault upon my invaders had to be made with much more powerful weapons.

And when at long last, by dint of much scrubbing and soaking and combing and hair-clipping and shaving I was clean again, and, dusted with talcum powder, was placed between cool white sheets, the change from the months of squalor was so wonderful, even unnerving, that almost the only possible reaction to it was to dissolve into tears.

Even unto this day whenever I hear the word "lousy"—and it is usually from the lips of some person who never harboured one of these parasites —or expressions such as "I feel lousy" or "He's a lousy blighter", I am at once switched away back a quarter of a century to those days when I and many thousands of others carried our "load of mischief".

Had I known then as much as I know now my experience could have been, if not entirely avoided, at least very considerably minimised. My great hope is that these pages which you are now reading will enable you to reduce

the vermin nuisance almost to vanishing-point.

Lousy though the subject may be, it is of very great importance for a great deal of disease can be traced to the different kinds of lice which with the slightest encouragement will infest the human body and increase and multiply thereon. Those types are known from the sites they frequent as: (1) the body-louse; (2) the head-louse, and (3) the crab-louse.

In ordinary peacetime conditions, the head-louse is by far the most common. An investigation carried out by the Board of Education and the Ministry of Health showed that among the poorer classes of city-dwellers, 50 per cent of girls and 30 per cent of boys were infested with head-lice.

As is pointed out in a valuable and interesting leading article in the *British Medical Journal* for 8th February, 1941, the life histories of the body-louse and the head-louse are similar. The female louse lays some ten eggs a day. These take ten days to hatch out; and in another ten days the baby lice have become adults capable of reproducing themselves. It is perfectly evident that if breeding is not checked by some means a single female can, within a matter of days, produce 120 daughters and 14,400 grand-daughters. In a very short time, therefore, the louse population of the body can increase to an alarming extent.

The louse, however, cannot live for more than twelve hours, according to Professor Buxton, separated from the human body since that is the

only source of its food supply. The terrific breeding-rate of the louse is effectively retarded by such simple measures as removing the day clothes before retiring to bed—a procedure which at once reduces that rate by 50 per cent, and by changing the underclothing frequently. This last, removes the bulk of the eggs and other stages in the development of the parasites. If such changing of the clothes is done fairly frequently it is unlikely that the parasites, even if frequent re-infestation should occur, will be able to establish themselves upon the body of another person.

The important point is emphasized that if there took place a very great increase in the louse population, not only would there be caused much physical discomfort, but the inability to keep free from parasites might have a dangerous effect upon the morale of large sections of the community. This lowering of morale is especially liable to occur among the *civil* population. This is due to the fact that the plague of vermin is to them a completely new thing—a thing which they have been taught to regard as being the exclusive property of "the great unwashed"; and it has descended upon them although they are still pursuing their ordinary avocations in accustomed surroundings. It is the novelty of the thing and the associated idea of uncleanliness which saps the morale of the civilian.

Except in very rare instances, all that the soldier feels about lousiness is that it is a bit of a

nuisance. He accepts it as being just a part of his new life; all his pals are in the same condition, and lice-hunting along the seams of his garments he begins to regard as something of a joke.

The great danger of the louse lies in the fact that it is capable of transmitting disease of a serious nature. At one time, typhus fever was not uncommon in the United Kingdom; and if this disease were to be reintroduced at a time when the population was heavily infected with lice, the result would be a widespread and disastrous epidemic.

In the Near, Middle and Far East typhus is always present; and when troops return to the United Kingdom from these regions it is well within the bounds of possibility that they might be the means of once again importing this disease.

Another disease carried by lice and prevalent in the East is relapsing fever. A certain insecticidal powder known as "A 63" has recently been discovered and is said to be effective in checking lice infestation for many days after a single application to the underclothes. If this is confirmed it is clearly time that the powder was made generally available to both soldiers and civilians.

The head-louse is found most frequently in children, but adults by no means escape. An investigation has shown that 10 per cent of women are affected. The head-louse may be fought by thorough and frequent combing of the hair with a specially fine-toothed steel comb. The simplest

chemical application which will destroy lice and their nits consists of 70 per cent alcohol made from methylated spirit and applied so that the scalp is kept wet with it for one hour.

The crab-louse infests the hair covering the genital region. It causes the most intense itching. It is best dealt with by shaving the parts and anointing the area with "white precipitate" ointment.

When, then, you find yourself in the tropics on active service you must continuously protect yourself against head-, body-, and crab-lice. The hair of the head should be close-cropped no matter how like a convict that may make you appear. You should provide yourself with a fine-toothed steel comb and frequently have recourse to it. You should smear the seams of your garments with white precipitate ointment.

CHAPTER V

Mental Readjustment

Thus far I have been writing about your physical readjustment to an entirely new set of environmental conditions. To make that readjustment is a comparatively easy matter. It is partly involuntary and, besides, you have the example of others doing likewise. The mosquito net, the fly-swatting, the helmet-wearing and all the rest are matters of routine or of orders, and in the course of a very short time they become automatic. The end result is that you rapidly become physically acclimatized.

But there is something of even greater importance than physical acclimatization, and that is the necessity for readjusting yourself mentally to the new surroundings in which you find yourself. Unquestionably the mind can triumph over matter; but don't forget that the converse is equally true. To set the mind to dominate adverse physical conditions is a tremendous task increasing in difficulty as the material surroundings worsen. The line of least resistance—too often camouflaged under the term "resignation"—is simply to throw in your hand and cease to struggle. If you are to keep yourself from being contaminated by your

surroundings, to avoid being overwhelmed by them, you must make very definite, carefully thought-out and well-sustained efforts.

You are in a very similar position to a man unjustly sentenced to seven years penal servitude. To such an one, incarcerated within the unrelenting walls of a prison, there is required a terrific mental readjustment if he is to endure his unmerited punishment with fortitude, and, upon his release, emerge from jail unembittered and unrevengeful. If the prisoner's mentality has been such—or if he had made it such—that he has been able to accept his position philosophically, if he has not yielded to the very natural temptation to "kick against the pricks" and to rage against the injustice which has been done to him, the term of his imprisonment with all its indignities is capable, provided he will adopt the right methods, of developing and strengthening his character and making him a better man than he would otherwise have been. But such a reaction must come from within himself. Most convicts, however, emerge from the portals of the jail furtive, cowed, broken and intensely resentful men whose mind and hands are turned against all law and order. And the reason is simply that no matter how well-educated and how intelligent such men may be, they have lacked the psychological resiliency necessary to cope with and to defeat penal conditions.

The lonely white trader in the tropics marooned for a long period in some pestilential post in the

wilds of West Africa too often degenerates and tends to "go native." And when he does he sinks into a physically unclean gin-sodden wreck for whom the native has nothing but the most profound contempt.

For the soldier, degeneration of that degree, or brought about with the same rapidity, is unlikely because in the midst of his fellows, he would by them not be permitted to lapse so far, at least in the physical sphere. Nevertheless, after the first novelty of active service and of the tropics has worn off, after being weakened by a bout or two of fever or dysentery, after weeks and weeks of heat and flies and monotony, there is apt to occur a period of severe depression. Although you are daily in close contact with your brother officers and the men, the very fact that you cannot get away from them, begins to irk. You develop a sense of irritation at the utmost trivialities. You begin to loathe a man's personal appearance, his manner of talking, the way he eats, the opinions he expresses. A great feeling of loneliness may come upon you; and you may develop either a superiority or an inferiority complex. Both are equally bad. Both have the effect of driving you further in upon yourself. The man concerned begins to see insults and sneers where none really exist. He loses confidence in himself and he acquires the habit of sulking in his tent.

All this is most likely to happen in the hot weather when the force is pinned down by climatic

conditions and fighting is impossible. Everyone has his bad times in the tropics; times when in the blistering heat one's mind *will* turn to things such as cool bathrooms with polished taps, soft beds with lavender-scented sheets, tumblers of long drinks with chunks of ice clinking against the sides, shaded lights and soft music, lying in the heather beside a highland stream, the drone of bees in the garden at home, long walks over the English downs, bread and cheese and a pint of beer in a Sussex wayside inn. But all these lie somewhere in the past and perhaps in the future. The present only holds a furnace-like temperature, flies, chlorinated water, sweat, mosquitoes and disease. And you are apt to be overwhelmed with a heart-breaking homesickness and are tempted to cry out: My God, why should I have to endure all this? At such times there will always be a Devil at your shoulder whispering in your ear: "Why not throw your hand in; go sick and get out of it all?" When you hear that poisonous whisper, that will be your testing-time.

These unattainable longings, these mental reactions, have driven men in the tropics to drunkenness, madness, suicide and murder. They have been weaklings; and their weakness has been due to the fact that they have been unprepared for these things and, when they have been encountered, have not known how to adjust their mental outlook to them.

You are now a soldier. You have emerged from

your long and gruelling period of training and are now engaged in doing a job of work. Peacetime lies not only behind but also ahead of you; and you are now marooned between the two. My advice to you is not to look backwards too often nor forwards too longingly. Let the past remain more or less buried, and let the future take care of itself. Your concern now—the business for which you have been trained and for which you are being paid—is to get on with your job. That is now your sole mission in life. It is not an easy or comfortable mission, but everything that really matters depends upon it. It is, therefore, up to you to get on with it cheerfully and to carry it through efficiently right up to the end.

Efficiency depends to a great extent—indeed it varies directly with—your interest and your happiness in your work.

Just think for a moment of the numerous men of our race who in the past explored vast unknown tracts of the tropics. The conditions they faced were much harder than those presenting themselves to you now. They had no inoculations to protect them against disease; they had none of the resources of modern science; they did not possess the splendid equipment with which you are provided; and, very often, they were without any other white companion—a lone white man penetrating into Darkest Africa with only a few native porters and surrounded by tribes whose hostility was much more to be relied upon than their

friendship. But these men did their job. Some fell by the wayside, but they never threw their hand in. They had "guts"; they were keen on the task they had undertaken and they saw it through. You are now following in their footsteps, and you must not let these men down.

The one thing necessary to enable you to finish the course is "guts", both physically and mentally. You will find, when you get there, even in your own unit, some otherwise excellent fellows competent at their work and full of that physical courage which wins Victoria Crosses who, because they have no real mental or psychological "guts", will crumple up under the strain of the tropical sun, the disease and the long absence from home. They lose their grip of things, mope, become depressed, fall sick and fade away to hospital or the cemetery.

Now, there are many ways in which you can combat the degenerating effect of the tropics upon yourself and your men.

You must, first of all, by giving heed to what has been written in the previous chapters, maintain your physical health. On board ship you will, no doubt, have played deck tennis or "teniquoits". That is a game which can be very strenuous and give you the maximum of exercise. Well, then, before you reach your disembarkation port, make friends with the bosun or some such person and get him to make for you a supply of the rope rings with which this game is played. With these in

your possession you will, when you get ashore, easily be able to fix up the necessary poles and net. Institute inter-platoon competitions; and you will soon find that the men will become very enthusiastic and everybody will want to play. This game is much better than football or hockey because these are apt to degenerate into some eleven men playing and an enormous number merely enacting the part of passive spectators. With teniquoits, however, provided you make enough rope rings to go round, the occupants of every tent will form themselves into a team ready to challenge all comers.

In spite of all you can do, it is almost certain that you will be sick at times, but you must not let that depress you. Everyone gets it in the tropics; and, if you happen to be one of those wretched and truly unfortunate people who have never had a day's sickness in their lives, you must just accept the inevitable and realize that since you are well protected by your various inoculations, you are certainly not going to hand in your checks.

Apart from purely military work and training, you just exercise your mind in other directions. The more hobbies you can cultivate the better it will be for you.

Purchase a series of smallish notebooks such as will easily be accommodated in your pocket and keep therein a diary. As each notebook is completed, either post it home or send it to the Base—

care of a Bank, for example—to be kept till the end of the war. The latter is the safer procedure because home-going ships are sometimes torpedoed, and also the Censor may delete certain parts of your diary when it passes through his hands in the post. You will find that the free, candid setting-down of your doings, your thoughts, hopes, fears and ambitions in your diary will do you a tremendous lot of good mentally. It helps you to focus things in their true perspective, and problems that seemed mountainous will reduce themselves to their true stature of mole-hills. Honest, unfettered diary-keeping without any reserve or repression is a sort of personally conducted psycho-analysis—something akin to the auricular confession practised by the Roman Catholic Church. It gets things "off your chest"—a mental unburdening which is highly beneficial.

If you have any skill, no matter how small, in sketching or painting, cultivate it for all you are worth. You will not lack for subjects, and your sketches and paintings will greatly enliven the pages of your diary. Apart from that, the ability to sketch accurately has a very distinct military value.

Another interesting thing to take up is surveying and map-making. With your prismatic compass and a plane-table you can put in a lot of interesting work of geographical importance.

There is always a possibility that you may at some time find yourself acting as "Governor" of

some village, town or district. To do this efficiently, you must know the language. Interpreters can at times be terribly and dangerously unreliable. One of the things which most impresses the natives is your ability to converse with them in their own language. You should, therefore, study this very seriously. If you can procure a textbook, do so; but in order to acquire confidence and fluency you must talk it every day with the natives. There is usually to be found in the bazaar some merchant in whose booth you can sit and drink coffee and pick up the language just like a child does—and that is the best way of all. Cultivate the friendship of your native tutor and in this way you will gradually get to know the native mind, a thing which will be of immense value to you and to the Service. You will find that the time thus devoted to the study of the language and the manners of the people will be interesting and well worth while. But it must be done thoroughly and not superficially.

Since you are likely to have frequent contacts with Indian troops, you should also learn Hindustani—a language which is fairly easily acquired.

During the long, inactive and stifling Mesopotamia summers of 1916, 1917 and 1918 I found that that most sociable of all games, chess—and contrary to general belief it really *is* an extremely sociable game—was an excellent thing. Once you introduce it into your unit you will be surprised at three things: (1) the number of hitherto

unsuspected good chess players among your men; (2) the enthusiasm with which the game is taken up by those who never played it before; and (3) the extraordinary way in which some of these novices develop into first-class players. After it was introduced into my own unit in 1916 it spread like an epidemic. Very soon, competitions were in full swing—Officers *versus* N.C.O.'s, one unit *versus* a neighbouring one, and so on. I was having sent to me from England the *Weekly Times;* and as each issue arrived I posted up on the notice-board outside my Orderly Room that week's chess problem. Solutions had to be sent in within seven days. The correct solution was posted up the following week or when the next issue of the paper arrived. Marks were given for correct answers and a small prize was awarded at the end of the competition. The keenness shown was remarkable; and in walking round the camp one could often hear fierce arguments proceeding from the tents as to the various "moves". The necessary boards and chessmen should, if possible, be taken with you from Great Britain; but they can usually be obtained by applying to the Base Red Cross Stores when you get abroad.

Crossword puzzles are also excellent, and competitions can be organized in the same way as for chess. Good fun can be had, for example, by the Officers and N.C.O.'s each constructing a crossword puzzle. These are exchanged and a team from each side competes in the solving of

them. The winner is the team completing the solution in the shortest time.

You will, of course, get up a concert party, and in doing so you will probably unearth a surprising amount of talent. You may even be able to rise to the production of a pantomime. In my old unit during the last war a very good pantomime was written entitled "Achi Baba or the Forty Quartermasters." Unfortunately it never reached the stage of being produced owing to the activities of the enemy, but we had much entertainment during the rehearsals.

One final word. Take an even deeper interest in and exercise an even greater care over your men than you have ever done before. Get to know them personally, their home towns, their jobs, the names and ages of their children, everything about them. Really and truly and without any pretence whatever seek to become their friend. But this must be done unostentatiously. Don't pry into their affairs; don't become an inquisitor. Respect your men and intrude not upon their privacy. They will soon let you know by their manner if you are being intrusive. Invite a couple of your Platoon to accompany you when you go map making or sketching or shooting; and, for the time being, forget the difference in rank that exists. If one of your men falls sick, visit him often, even if it means a ride of several miles to the Field Ambulance or Hospital in which he is a patient.

Now I must make an end. I have tried in this little book to help you from my own experience; and I most sincerely hope that what I have written will prove of value to you. And now I wish you in your adventure the very best of luck and, in the words of the R.A.F.: "Happy landings."

THE END